

TIP130/131/132
TIP135/136/137

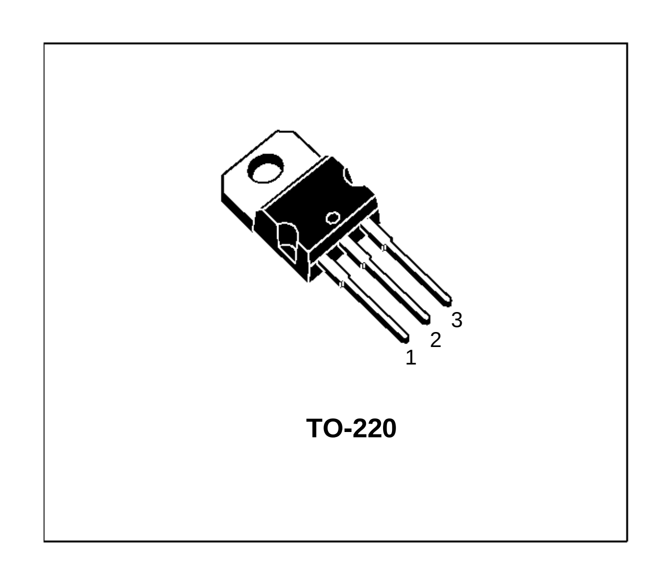
COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

- TIP131, TIP132, TIP135 AND TIP137 ARE SGS-THOMSON PREFERRED SALESTYPES

DESCRIPTION

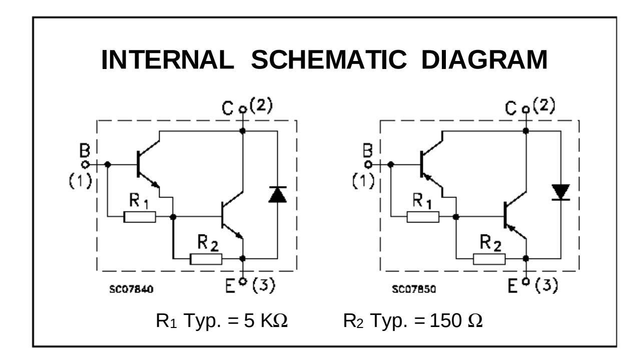
The TIP130, TIP131 and TIP132 are silicon epitaxial-base NPN power transistors in monolithic Darlington configuration, mounted in Jedec TO-220 plastic package. They are intented for use in power linear and switching applications.

The complementary PNP types are TIP135, TIP136 and TIP137.



TO-220

INTERNAL SCHEMATIC DIAGRAM



R_1 Typ. = 5 KΩ R_2 Typ. = 150 Ω

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value			Unit
		NPN	TIP130	TIP131	TIP132	
		PNP	TIP135	TIP136	TIP137	
V_{CBO}	Collector-Base Voltage (I_E = 0)		60	80	100	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)		60	80	100	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)		5			V
I_C	Collector Current		8			A
I_{CM}	Collector Peak Current		12			A
I_B	Base Current		0.3			A
P_{tot}	Total Dissipation at $T_{case} \leq 25\ ^oC$ $T_{amb} \leq 25\ ^oC$		70 2			W W
T_{stg}	Storage Temperature		-65 to 150			^oC
T_j	Max. Operating Junction Temperature		150			^oC

* For PNP types voltage and current values are negative.

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	1.78	$^oC/W$
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	Max	63.5	$^oC/W$

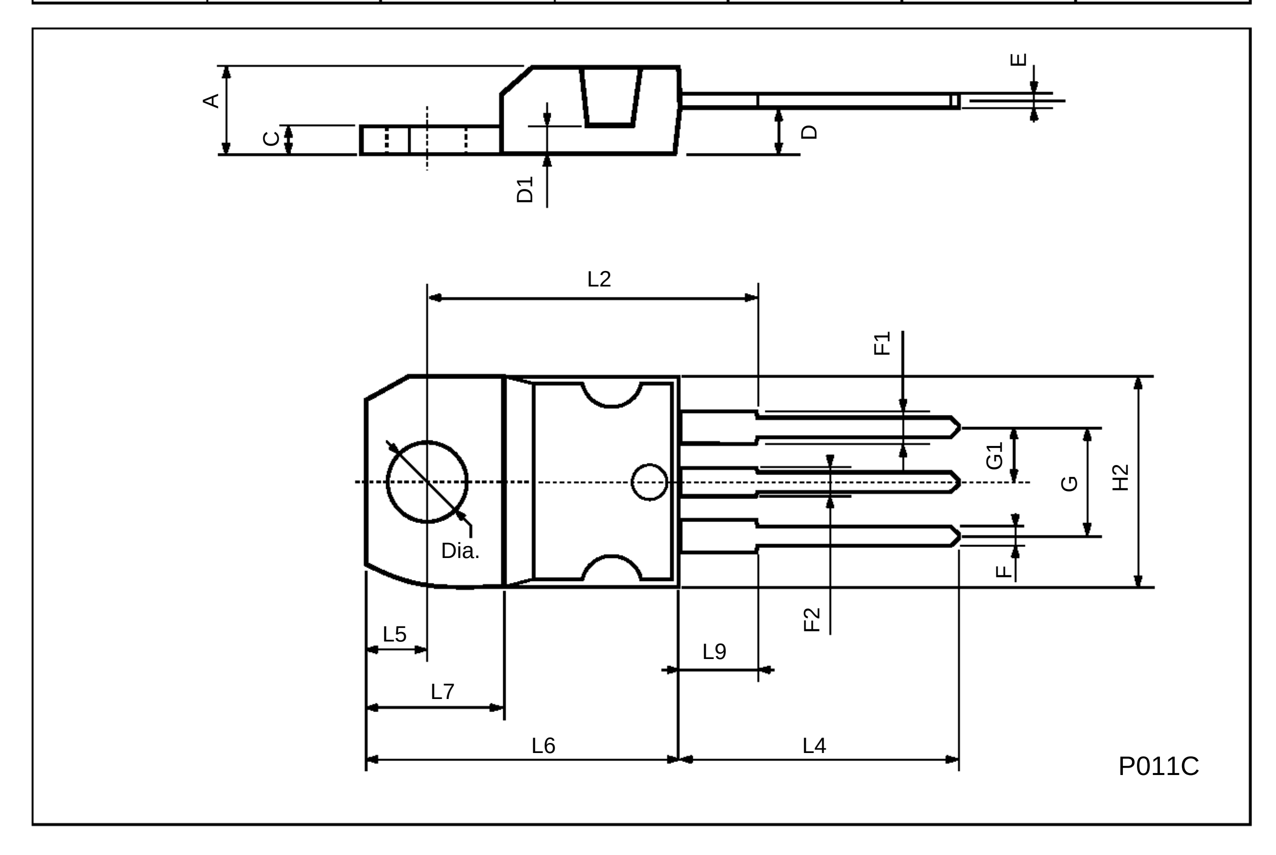
ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = Half Rates V_{CEO}			0.5	mA
I_{CBO}	Collector Cut-off Current (I_B = 0)	V_{CB} = Half Rates V_{CBO}			0.2	mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			5	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage (I_B = 0)	I_C = 30 mA for **TIP130/135** for **TIP131/136** for **TIP132/137**	 60 80 100			 V V V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 4 A I_B = 16 mA I_C = 6 A I_B = 30 mA			2 4	V V
$V_{BE(on)}$*	Base-Emitter Voltage	I_C = 4 A V_{CE} = 4 V			2.5	V
h_{FE}*	DC Current Gain	I_C = 1 A V_{CE} = 4 V I_C = 4 A V_{CE} = 4 V	500 1000		 15000	

* For PNP types voltage and current values are negative.

TO-220 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151




SGS-THOMSON
MICROELECTRONICS